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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BONZO, BRYCE P

ART UNIT PAPER NUMBER

2114

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,170

Applicant(s)

NAFFZIGER ET AL.

Examiner

Bryce P Bonzo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL OFFICIAL ACTION

Status of the Claims

Claims 1, 8, 14 and 17 have been amended by Applicant.

Claims 1-4, 6, 8, 10-12, 14-19 continue to be rejected under 35 USC §102.

Claims 5, 7, 9 and 13 continue to be rejected under 35 USC §103.

Claims 1-19 are newly rejected under 35 USC §112, first paragraph.

Rejections under 35 USC §112, First paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As the Examiner believes this not the *only* reasonable interpretation as outlined in the rejections under 35 USC §102, Application position on the claims is also being addressed to provide a complete record.

Applicant's description of these claims clearly indicates this limitation is to be interpreted as: NO receiver imitated communication occurs unless an error in the sequence identifier is determined (see page 7 of the arguments). Upon review of the

specification, the Examiner has determined this interpretation is not supported. Page 5, lines 22-25 clearly describe the use of acknowledge signals used when there are no transmission errors. Applicant does not explicitly provide an alternative embodiment with operates without these signals. As such it is crystal clear that when interpreted as Applicant desires, as stated in the Remarks of 10/18/04 the claims violate 35 USC §112, first paragraph.

Rejections under 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 8, 10-12, 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Moh (United States Patent No. 5,790,530).

As per claims 1-4, 6, 8, 10-12, 14-19, Moh discloses:

1. A method of providing error detection and correction of transmission of data units between a sending and a receiving agent connected together in a network or computer interconnect environment, the data units having a predetermined size, a control portion and an information portion, the method comprising:

the sending agent inserting an expected sequence identifier in each data unit (column 6, lines 64-65);

the receiving agent examining the sequence identifiers of the data units to determine the sequence of data units being received (column 7, lines 41-44: Moh discloses detecting a sequence out of order error, which must be determined by the comparison of sequence numbers); and,

the receiving agent initiating a communication with the sending agent only if the receiving agent determines that a received data unit has an incorrect sequence identifier (column 12, lines 11-14; column 11, lines 51-60), in which event the receiving agent requests the sending agent to resend a data unit for which it is determined that the sequence identifier is incorrect (column 12, lines 6-14: Moh discloses the data transport method looping back to retransmit the data unit after an error and receiving the error ACK message).

2. A method as defined in claim 1 wherein said predetermined size is within the range of about 64 to about 256 bits (column 5, line 44: discloses a 64 bit long control message).

3. A method as defined in claim 2 wherein said predetermined size is about 128 bits (column 9, lines 63-64 disclose the incrementing of message size by 64's. 64+64 resulting in a 128 bit message).

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4. A method as defined in claim 1 wherein said sequence identifier is a number that is changed in a predictable manner for each successive unit (inherent, if the sequence numbers are not structured in a predetermined method, then the sequence numbers have no meaning, that is they do not represent a sequence).

6. A method as defined in claim 1 wherein said sequence identifier is inserted in the control portion of the data unit (column 6, lines 58-65).

8. A method of providing error detection and correction of transmission of data packets comprising at least two flits between sending and receiving agents connected together in a network or computer interconnect environment, the flits being of a predetermined size and having a control portion and an information portion, the method comprising:

the sending agent embedding a sequence identifier in each flit prior to transmission by a sending agent (column 6, lines 64-65);

the sending agent sending each flit to a connected receiving agent (abstract);

the receiving agent examining the sequence identifiers of each flit to determine the sequence of flits being received (column 7, lines 41-44: Moh discloses detecting a sequence out of order error, which must be determined by the comparison of sequence numbers); and,

the receiving agent initiating a communication with the send agent only if the receiving agent determines that a received flit has an incorrect sequence identifier

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(column 12, lines 11-14; column 11, lines 51-60), in which event the receiving agent requests the send agent to resend a flit for which it is determined that the sequence identifier is incorrect (column 12, lines 6-14: Moh discloses the data transport method looping back to retransmit the data unit after an error and receiving the error ACK message).

10. A method as defined in claim 8 wherein said predetermined size is within the range of about 64 to about 256 bits (column 5, line 44: discloses a 64 bit long control message).

11. A method as defined in claim 10 wherein said predetermined size is about 128 bits (column 9, lines 63-64 disclose the incrementing of message size by 64's. $64+64$ resulting in a 128 bit message).

12. A method as defined in claim 8 wherein said sequence identifier is a number that is changed in a predictable manner for each successive unit (inherent, if the sequence numbers are not structured in a predetermined method, then the sequence numbers have no meaning, that is they do not represent a sequence).

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14. A method for providing error detection and correction of transmission of data units between sending and receiving agents connected in a network or computer interconnect environment, the data units being of a predetermined size and having a control portion and an information portion, the method comprising:

the sending agent inserting a sequence identifier in each data unit (column 6, lines 64-65);

the sending agent sending the data unit to the receiving unit (Abstract);

the sending agent retaining a replica of the data unit in a memory (column 6, lines 6-14);

the receiving agent examining the sequence identifiers of each data unit to determine the sequence of data units being received by the receiving agent (column 7, lines 41-44);

the receiving agent initiating a communication with the sending agent only if it is determined that a received data unit has an incorrect sequence identifier (column 12, lines 11-14; column 11, lines 51-60), in which event the receiving agent requests the sending agent to resend a data unit for which it is determined that the sequence identifier is incorrect (column 12, lines 64-65).

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15. A method as defined in claim 14 wherein said sequence identifier is inserted in the control portion of the data unit (column 6, lines 64-65).

16. A method as defined in claim 14 wherein said predetermined size is about 128 bits (column 9, lines 63-94).

Claims 17-19 are the system for providing error detection and correction using the method of previously rejected claims 14-16 and are rejected on the same grounds recited above.

Rejections under 35 USC §103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moh (United States Patent No. 5,790,530).

As per claims 5 and 13, Moh does not explicitly disclose:

wherein said number incremented by a known value for each successive unit.

Official Notice is given that it is well known in the art of message passing systems of all sizes, to increment the message sequence number by a known value

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(typically 1). This system is practiced in TCP/IP, IPX/SPX, Ethernet, Token Ring and nearly all modern data passing systems in existence. The practice of incrementing, specifically by 1, has numerous advantages. First, incrementing (also known as adding) is a very fast computation. Incrementing by 1, is so widely used, it typically has its own command in both hardware and software languages. Second, incrementing, specifically by 1's, is a natural process when sequencing or ordering things. Designers typically think by counting by 1's and as such simply encode adding one into the sequencing system because it is simple and efficient. Thus it would have been obvious to one of ordinary skill in the art at the time of invention to increase the sequencing numbers of Moh by a known value, thus conforming the basic human instinct to number things consecutively and further taking advantage of the built in support for this adding present in hardware.

As per claims 7 and 9, Moh discloses:

retaining a replica of each data unit for a period of time necessary for said examining step to determine that the sequence identifier for a transmitted data unit is correct (column 6, lines 6-14: if the packet is retransmitted as shown by the flow chart and specification of Moh, the only place it could have been reproduced from is the buffer which sent it).

Moh does not explicitly disclose:

discarding said replica when said sequence identifier for the transmitted data unit is correct.

Official Notice is given that is ubiquitously well known to empty unneeded data from a buffer in data transmission arts. Buffers, particularly those in the micro-architectures of microprocessors and I/O controllers, have a finite buffer size, which must be utilized very carefully. Thus when data is no longer needed it is removed from the buffer to allow the transit of more data that needs to be moved. The data at the sender having been successfully transferred to receiver, is a clear case of data no longer needing to be stored at the sender's buffer. Thus it would have been obvious to one of ordinary skill in the art at the time of invention to discard the replica once transmission has been completed successfully, allowing the buffer space to be used by more data awaiting transmission, thereby making the fullest use possible of the limited buffer size in the sender.

Response to Applicant's Arguments

First, Applicant has argued that Moh has a mandatory acknowledgement communication. "A communication" is claimed, not "all communication" in the independent claims. The Examiner has elected to interpret "a communication" to mean an error communication, as described in Applicant's specification. Moh clearly only sends error communications to the sender only in the case where there are errors in the system. Applicant contends the acknowledgement of successful transmissions as taught Moh is also prohibited by the claims. The claims, however, recite "a communication" which indicates only a single type of communication is restricted, and as such, the error signal of Moh meets this limitation while the successful acknowledge

is not material to the claims. Examiner points to page 5, lines 22-25 of Applicant's specification which shows the presence of the same communication: a restricted use error signal and a successful acknowledge signal.

Second, Applicant has argued that Moh teaches 1 Megabyte transmissions. The Examiner disagrees. Moh discloses transferring a memory space of 1 Megabyte as a sequence 16 to 64 byte data units. The Examiner points out that 16 to 64 bytes is 128 to 512 bits, and therefor Moh discloses data unit sizes which are about 64 to 256 bits. Further, Moh specifically enables a size of 128 bits (16 bytes).

Third, Applicant argues that Moh is far more complex than claimed invention and has far more flits. This is immaterial as there are not any claimed restrictions to the number of other flits or data structures present in the system. Moh while more rigorously thoroughly disclosed continues to teach all the limitations of the claimed invention.

Fourth, Applicant has argued that Moh uses acknowledgements that are specifically prohibited by the claims and are not even present in Applicant's "simple" system (page 6, lower portion of paragraph 3). The Examiner points to page 5, lines 22-25 which states explicitly Applicant's invention uses acknowledgements similar to structure, and identical in function to those of Moh.

Final Disposition

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryce P Bonzo whose telephone number is (571)272-3655. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Bryce P Bonzo
Primary Examiner
Art Unit 2114